KEIL, G.; SAXE, H.; REICHELT, F.; SAFR, E., [...]

    Possibilities of reducing the consumption of lubricants. Ropa
    a uhlie 7 no.1:22-26 Ja '65.

KEIL, Ivan, inz.

Maps for regional planning of rural settlements and of development of agricultural production. Geod kart obzor 7 no.12:228-230 D '61.

1. Statni ustav pro typizaci a vyvoj zemedelskych a lesnickych staveb v Praze, atelier uzemniho planovani.

(Rural conditions)   (Agriculture)   (Maps)

KEIL, J.

"Intensifying our international cooperation in scientific research." p. 204

VESTNIK. Praha, Czechoslovakia, Vol. 6, No. 4, 1959

Monthly list of East European Accession Index (EEIA), Library of Congress,
Vol. 8, No. 7, July, 1959, Unclassified

KAPSA, Oldrich; KEIL, Jaroslav, inz.

Scientific technical information, an indivisible part of
agricultural research and practice. Vestnik CSAZV 9 no.2:
104-108 '62.

KAPSA, Oldrich; KEIL, Jaroslav, inz.

Cooperation of central agencies of scientific and technical in-
formation on agriculture and forestry of socialist countries. Vestnik
vyzk zemedel 9 no.8:292-298 '62.

1. Ustav vedeckotechnickych informaci, Ministerstvo zemedelstvi,
lesniho a vodniho hospodarstvi, Praha.

KEIL, Jaroslav, inz.

Tasks of the International Center for Coordination of
Scientific and Technical Information on Agriculture and
Forestry of the member states of the Council of Mutual
Economic Assistance. Vest ust zemedel 11 no.2/3:53-59
'64.

1. Institute of Scientific and Technical Information,
Ministry of Agriculture, Forestry and Water Resources
Management, Prague.

KEIL, Jaroslav, inz.

How to develop the use of information and experiences on
agricultural production from abroad. Vest ust zemedel 10
no.9:351-354 '63.

1. Ustav vedeckotechnickych informaci, Ministerstvo zemedelstvi,
lesniho a vodniho hospodarstvi.

KEIL, M., AND OTHERS.

Keil, M., and others. Periodic formation of gametophytes in moss cultures. p.15.

Vol. 10, no. 1, 1955   BIOLOGIA   Bratislava, Czechoslovakia

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 2
     February, 1956

KEIL, M.

KEIL, M.   "Protein" turbidity of wine.   p. 208

Vol 2, no. 9, Sept. 1956
KVASNÝ PRUMYSL
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession   Vol. 6, no. 2, 1957

KEIL. M.

Wine spoiled by corks. p. 181. (KVASNY PRUMYSL, Vol. 3, No. 8, Aug 1957, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

CZECHOSLOVAKIA

RYBAK, B.; KEIL, K.; Laboratory of Physiology and Genetics of Animals, Czechoslovak Academy of Sciences (Laborator Fysiologie a Genetiky Zivocichu CSAV), Ukrineves.

"Evaluation and Identification of Some Materials by Changes Induced by Reversing the Direction of the Electric Current Flow."

Prague, Ceskoslovenska Fysiologie, Vol 15, No 5, Sep 66, p 378

Abstract: Some organic substances show typical changes due to polarization caused by the flow of a DC electric current. These changes are reversible. 19 experiments with healthy and pathological animal tissues, with amino acids, with cheeses, and with paper were conducted. No references. Submitted at 3 Days of Physiology of Domestic Animals at Liblice, 8 Dec 65.

1/1

KEILIN, Joan

The nature of the haemoprotein in the eggs of Planorbis Corneus.
Acta biochim.polon. 7 no.2/3:367-375 '60.

1. Department of Veterinary Clinical Studies, School of
Veterinary Medicine, University of Cambridge
        (BLOOD PROTEINS)
        (OVUM chem)
        (SNAILS)

Country : CZECHOSLOVAKIA.   M
Category: Cultivated Plants, Ornamental
Abs Jour: RZhBiol., No 11, 1958, No 49191

Author : Keilova, Vera
Inst   : -
Title   : Amorphophallus

Orig Pub: Ziva, 1957, 5, No 3, 96

Abstract: No abstract.

Card   : 1/1   - E N D -

#1471   M-191

KEILWERT, Vilmos, Kossuth-dijas; KAHLESZ, Bela

Remarks. Elelm ipar 14 no.8/9:232-233 Ag-S '60.

1. Lang Gepgyar (for Keilwers). 2. Eliti (for Kahlesz).

GULYAS, Bela; KAROLYI, Jozsef; FEHER, Jozsef; KEILWERT, Vilmos;
VIRAG, Jozsef; GANGER, Gyorgy

Requirements of the food industry toward machine manufacture.
Elelm ipar 17 no.2:36-46 F '63.

1. Elelmezesugyi Miniszterium (for Gulyas). 2. Orszagos
Tervhivatal (for Karolyi). 3. Geptervezo es Muszaki Iroda
(for Feher). 4. Lang Gepgyar (for Keilwert). 5. Geptervezo
es Muszaki Iroda (for Virag). 6. Hutolanc Tarcakozi Bizottsag
Titkarsaga (for Ganger).

LESZC;NSKI, Franciszek; WROBEL, Czeslaw; SULARZ, Ziemowit; WARCHEL, Eugeniusz;
    KEIM, Jerzy

The need for engineering correspondence courses in Breslau. Przegl
geod 34 no.3:122-124 Mr '62.

RUMANIA / Analytical Chemistry. Analysis of Inorganic   E
             Substances.

Abs Jour: Ref Zhur-Khimiya, No 4, 1959, 11509.

Author : Steresou, M., Keim, N.
Inst   : Not given.
Title   : The Detection and Determination of Copper and
          Ccbalt in the Presence of Large Quantities of
          Iron by the Method of Chromatography on Paper.

Orig Pub: Rev. chim., 1958, 9, No 6, 329.

Abstract: There is described a method of chromatographic
          determination of Cu and Co in a drug, "Neoanemo-
          vite," containing 0.05 g of Cu and Co chlorates
          and 12 g of Fe saccharate in 100 g of syrup.
          Five g of the analyzable substance is trated with
          sulphuric acid and perhydrol, evaporated to dry-
          ness, and the residue is dissolved in 10 ml of a

Card 1/2

RYCHLIKOVA, Milena; KELLOVA, Helena

    Culture of tumor tissue on synthetic media. Cesk. biol.
    4 no.2:71-76 Feb 55.

    1. Biologicky ustav CSAV, biologie tkani, Praha.
            (NEOPLASMS, experimental,
                culture on synthetic media)
            (CULTURE MEDIA,
                for neoplasms)

RYCHLIKOVA, Milena; KEILOVA, Helena

Culture of tumor tissue on synthetic media. Cesk. biol. 4 no.2:
77-81 Feb 55.

1. Biologicky ustav CSAV, biologie tkani, Praha.
        (NEOPLASMS, experimental,
            culture on synthetic media.)
        (CULTURE MEDIA,
            for neoplasms)

KEILOVA, Helena; SORM, Frantisek

    Potentiation of the antitumorous action of 6-azauracil by procaine
and excretion of 6-azauracil from the body. Neoplasma, Bratisl.
4 no.3:204-207 1957.
               (URACIL, antag.
                     6-azauracil, potentiation of antitumorous action
                     by procaine & excretion in mice)
               (CYTOTOXIC DRUGS, eff.
                     same)
               (NEOPLASMS, exper.
                     eff. of 6-azauracil, potentiation of antitumorous
                     action by procaine & excretion in mice)

KETLOV, H.

Some problems of cancer research.

p. 430 (Chemie, Vol. 9, no. 3, June 1957, Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 2,
February 1958

KEILOVA, Helena,(Chemicky ustav CSAV, Praha 19, Na cvicisti 2.) SORM, Frantisek,
————(Chemicky ustav CSAV, Praha 19, Na cvicisti 2.)

A contribution to the study of resistance to Crocker's tumour. Neoplasma,
Bratisl. 5 no.1:26-33 1958.

1. Institute of Chemistry, Czechoslovak Academy of Sciences, Prague.
        (NEOPLASMS, exper.
             Crocker's tumor, ligation & transpl. time in relation to
             immunity)

KEILOVA, Helen, (Praha 19, na cvicisti 2.); CHUTNA, Jitka, (Praha 19, na cvicisti 2.)

On the incidence of eosinophile leukocytes in immunological reaction of the organism on tumour homotransplants. Neoplasma, Bratisl. 5 no.1: 34-43 1958.

1. Institute of Chemistry, Czechoslovak Academy of Sciences, Prague. Institute of Biology, Czechoslovak Academy of Sciences, Prague.
(NEOPLASMS, exper.
    homotranspl., incidence of eosinophil leukocytes in immunol.)
    reaction)
(LEUKOCYTES,
    eosinophil, incidence in immunol. reaction in exper. cancer
    homotransplants)

SORM, Frantisek, Akademik; KEILOVA, Helena, Dr.

Effect of elementary sulphur on antibody formation. Neoplasma, Bratisl.
6 no.1:27-30 1959.

1. Institute of Chemistry, Czechoslovak Academy of Sciences, Praha 19,
Na cvicisti 2, Prague.
(NEOPLASMS, extracts,
sulfur-containing tumor extract, eff. on antibody form.)
(SULFUR, effects,
sulfur-containint tumor extract & free sulfur, on antibody
form)
(ANTIBODIES,
eff. of sulfur-containing tumor extract & free sulfur on
antibody form.)

JAKUBOVIC, A.; KEILOVA, H.; SORM, F.

Certain properties of liver catalase inhibitors present in the
medium after tumor cell culture. Neoplasma,Bratisl. 7 no.1 suppl:
71-75 '60.

(NEOPLASMS)
(CATALASE antag)
(TISSUE CULTURE)

KEILOVA, H.; JAKUBOVIC, A.; SORM, F.

On inhibition of the liver catalase activity. I. Influence of
media after cultivation of HeLa strain tumour cells on the
activity of liver catalase. Neoplasma,Bratisl. 7 no.3:257-267 '60.

1. Institute of Chemistry, Czechoslovak Academy of Sciences,
Prague, C.S.S.R.

(LIVER chem)
(CATALASE chem)
(TISSUE CULTURE)
(NEOPLASMS exper)

JAKUBOVIC, A.; KEILOVA, H.; SORM, F.

On inhibition of liver catalase activity - II. The influence of
cell-free ascitic fluid on liver catalase activity in mice.
Neoplasma,Bratisl.8 no.1:45-51 '61.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak
Academy of Sciences, Prague, Czechoslovakia.
        (LIVER metab)
        (CATALASE metab)
        (NEOPLASMS exper)

KEILOVA, H.; KEIL, B.

Proteinases of the Ehrlich ascites tumor. Part 1: Basic characterization
of the proteinases and their dependance on the growth of the tumor.
Coll Cz Chem 27 no.9:2186-2192 S '62.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak
Academy of Sciences, Prague.

KEILOVA, H.; KEIL, B.

Proteinases of the Ehrlich ascites tumor. Part 2: Separation of proteinases of the ascites fluid and ascites cells. Coll Cz Chem 27 no.9:2193-2201 S '62.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

KRIILOVA, H.;KEIL, B.; SORM, F.

Proteases of Ehrlich ascites tumor. Pt. 3.:Coll Cz Chem 29 no.9:
2218-2222 S '64.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak
Academy of Sciences, Prague. 2. Chairman, Advisory Board, "Collection
of Czechoslovak Chemical Communications" (for Sorm).

KEILOVA, H.; KEIL, B.

Proteinases of Ehrlich ascites tumour. Pt. 4. Coll Cz Chem 29 no. 9:2272-2276 S '64.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

KEIL, B.; KEILOVA H.; BARTOSEK, I.

CSSR

Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Science, Prague (for all)

"On Proteins. LXXX. Column Gradient Extraction of Proteins"

3

....., B.; KEILOVA, H.

On proteins. Pt. 90. Coll Cz Chem 29 nc.9:2206-2215 8 '64.

1. Institute of Organic Chemistry and Biochemistry, Czechoslovak Academy of Sciences, Prague.

KEIM, N.; DOROVICI, N.; STERESCU, M.

Identification and determination of papaverine in Cvacliman plums and
Spasmoverin tablets by means of paper chromatography. p. 108.

REVISTA DE CHIMIE. Bucuresti, Rumania. Vol. 10, no. 2, Feb. 1959.

Monthly List of East European Accessions. (EEAI), LC. Vol. 8, no. 9, Sept. 1959.
Uncl.

L 12351-63

AUTHOR: Sterescu, M., Keim, N and Popa, M.

S/081/63/000/005/023/075

57

TITLE: Polarographic and chromatographic study of several new compounds of
            the arylaminoalkylthio ether class

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 134-135, abstract 5G179
            (A 2-a sesiune a Inst de cercetari chimi-farmac. Comunicari, Bucharest,
            1961, 208-211)

TEXT: Polarographic behavior of 4-(β -piperidylpropionyl)-phenylhexylo,
4-(β -piperidylpropionyl)-phenylhexylo, 4-(β -piperidylpropionyl)-phenylcyclohexyl-,
ethers, 2-(β -piperidylpropionyl)-dibenxothiophene (I), 2-(β -piperidylpropionyl)-diphenylthio
phenoxathyn, 2(β -piperidylpropionyl thyantrene (II), 10-acetyl-2-(β -piperidylpropionyl)-
propionyl phenothyazine (III), 2,7-(bis- β -piperidylpropionylphenoxathyn) and 2,7-
(bis- β -piperidylpropionyl)-thyantrene was investigated as a function of pH of the
environment, the composition of the medium, and the forms of compound (basis or hy-
drochlorides). It was established that these substances might be determined by
polarographic methods only in the form of hydrochlorides in a pH of 2-4 in a solu-
tion of 5% LiCl with ethanol (1:1) in the presence of gelatin for suppression of
maxima. In the case of arialaminoalkylthio ethers of 0.04 - 0.08% content the

Card 1/2

L 12351-63

S/081/63/000/005/023/075

Polarographic and chromatographic ....

O

wave height is proportional to the concentration (only one wave is formed, corres-ponding to the reduction of the ketone group). The value of $E_{1/2}$ for the enumerated compounds is equal to -2.62, -1.67, -1/51. -1.58, -1.55, -1.63, -1/19. -1.57 and -1.60 v respectively. The chromatographic behavior of II, II, 2(β-piperidylpro-pane-1-01) dibenzthyophene (IV), 4 (β-piperidylpropane-1-01)-phenylcyclohexyl-thio-ether) (V) and I was studied on Watman No. 1 paper. Good results were obtain-ed in chromatographing 100 δ of substances in ethanol solutions (in parentheses are shown values of Rf) by the following method (8 hours) in the system acetone -- 1N solution of Na acetate — 1 N solution CH_3COOH (10:20:5 by volume): II (0.75), III (0.64) and I (0.58) and also on the paper, impregnated with a mixture of form-amide-ethanol (1:1) and using $CHCl_3$ in the role of solvent: IV (0.45) and V (0.54). These compounds on chromatograms are identified by Dradendorf reagent or by the UV-light. B. Manole.

/Abstractor's note: Complete translation/

Card 2/2

KEINIG, Ye. Ye.

Aortic Aneurysms

Case of multiple aneurysms of the aorta.   Klin. med. 31, No. 1, 1953.

9. Monthly List of Russian Accessions, Library of Congress, _____June_____1953, Uncl.

KEINTZEL, E., ing.

Dimensioning r inforced concrete rectangular sections, symmetrically reinforced at oblique eccentric stress. Rev constr si mat constr 16 no. 2:59-64 F '64.

KEINTZEL, Einar, ing.

Calculation of axially symmetrical multistoried spatial frames by using finite difference equations. Rev mec appl 9 no.4:923-934 '64.

1. Office for Systematization, Architecture, and Construction Designing, Brasov.

PANTI..,, Pinur. Inz.

Contributions to the systematization of seismic calculation of
frames in tiers. Rev. minier si met. petre 16 no.5:248-252 My'64

KEINTZEL, Einar

Calculation of axial-symmetrical spatial frames in tiers by equations with finite differences. Studii cerc mec apl 14 no.1:83-94 '63.

1. Directia de sistematizare, arhitectura si proiectare a constructiilor, Brasov.

KEIPERT M.

HUNGARY/Chemistry - Catalysts   1951

"Mechanism and Kinetics of the Hydrogenation of Stereoisomeric Ethylene
Carboxylic Acids," in German, Z. Csuros, I. Geczy, M. Keipert, Org Chem Tech
Inst, U Tech Sc i Budapest

" Acta Chimica Academiae Scientiarum Hungaricae" Vol 1, No 1, pp 22-45

Hydrogenated maleic, fumaric, and cinnamic acids with palladium-animal
charcoal catalyst. Examn of course of hydrogenation rate with max and min
as dependent on catalyst quantity showed also change in order of reaction between
zero and fractional value, not proportional to catalyst quantity, but also
with max and nim values. Hydrogenation rate const is greatest when order
of reaction approaches zero. With lowering of concn of substance, hydro-
genation rate const increases. Reaction product retards hydrogenation by
repressing adsorption both of substance and of hydrogen.

                                                              181T20

KEIPERT, M.

KEIPERT, M. - A new emulsion carrier; DuPont's "Cronar" polyester. p. (3) of cover.
        Vol. 2, no. 4, Aug. 1956.
        KEP ES HANGTECHNIKA. Budapest, Hungary.

SOURCE: East European Accessions List (EEAL) Vol. 6,   No. 4--April 1957

KEIPERT, M.

Results and tasks of photochemical research work. p.37. KEP ES
HANGTECHNIKA. Budapest. Vol. 2, no. 2, Apr. 1956.

SOURCE: East European Accessions List (EEAL), Library of Congress
Vol. 5 , No. 12, December 1956

KEIFERT, M.

KEIPERT, M. - The latest views on the mechanism of effect of optical sensibility.
    p. 119, Vol. 2, no. 5, Oct. 1956.·
    KEP ES HANGTECHNIKA. Budapest, Hungary
    (M.) Problems with the sound reproduction of long-playing records.
    p. 123, Vol. 2, no. 5, Oct. 1956.
    KEP ES HANGTECHNIKA, Budapest, Hungary

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

KEYRIM-MARKUS, I.
PHASE I   TREASURE ISLAND BIBLIOGRAPHIC REPORT   AID 403 - I

BOOK   Call No.: AF626269
AUTHORS: BOCHKAREV, V., KEIRIM-MARKUS, I., L'VOVA, M., and PROKLIN, Ya.

Full title: MEASUREMENTS OF ACTIVITY OF BETA AND GAMMA RADIATION SOURCES
Transliterated title: Izmereniye aktivnosti istochnikov beta i gamma izlucheniy

Publishing data
    Originating agency: Academy of Sciences, USSR
    Publishing house: Publishing House of the Academy of Sciences, USSR
    Date: 1953   No. pp.: 242   No. of copies: 5,000
    Editorial staff
        Editor: Prof. Groshev, L.V.   Tech. Ed.: None
        Editor-in-chief: None   Appraiser: None

    (see card for BOCHKAREV, V. for more data)

KEYRIM -MARKUS, I.B.

The dosimetry of radioactive radiations by aid of flashing phosphors. V. V. Antonov-Romanovskii, I. B. Keirim-Markus, M. S. Poroshina, and Z. A. Trapeznikova. Sessiya Akad. Nauk S.S.S.R. po Mirnomu Ispol'zovaniyu Atomnoi Energii, Zasedaniya Otdel. Fiz.-Mat. Nauk 1955, 342-01 (English summary).—A method of γ-dosimetry is given in which infrared-stimulated phosphors are used, e.g. ZnS-Cu,Pb; SrS-Ce, Sm; SrS-Eu,Sm (I). I was most suitable, therefore it was used to construct a sturdy, portable instrument for the dosage of thermal neutrons, β- and γ-radiation. The work was done mostly with γ-radiation, where the dose was detd. by the brightness of the flash of γ-ray excitation, after the luminescence had been induced with infrared. I showed deep-trap levels and. good excitability by hard radiation. This deep-trap level caused a long-time light-sum accumulation up to 40°, which was the reason why I was selected. The doses registered were between 0.005 and 1000 r. For doses of more than 0.5 r., 2-3 readings were taken. Each reading took about $1/3$ min., and there was no relaxation time (delay); the instrument responded spontaneously. The precision was ±15%; thus this was not an instrument for research but rather for control. For measurements of β-radiation and of thermal neutron flux the instrument must be shielded with Cd envelopes.   W. L.

③

KEYRIM-MARKUS, I. B.

/ Method of absolute activity measurement of β-radiation[9]   is attained at 1.25 D.A.J. where J = layer thickness in
-- with and free radiation counters. II. Collaboration

... ... kas and ma h'eva ... ... 7 ... v. shrukkenberg.

N. G. Gusev. *Ibid.* 180-01.—G. is concerned about the influence of ionizing radiation on the health of individuals and their descendants. The max. permissible radiation level is defined as the amt. which will not be harmful during life-long exposure. Reliable measurements exist presently only for γ and x-rays up to 3 m.e.v. as a result of biol. and med. investigations. Some theoretical calcns. are presented, with the max. permissible level of radiation exposure to γ-rays, β-rays, thermal neutrons, fast neutrons (0.5–20 m.e.v.), and very fast neutrons (>20 m.e.v.). A max. permissible exposure dosage as a function of exposure time is arrived at for the above radiations. G. recommends decrease of exposure to ionizing radiations to the lowest possible level until reliable measurements are available.

A. Kremheller

KEYRIM - MARKUS, I B

89-8-14/26

AUTHOR: KEYRIM-MARKUS,I.B., LISITSYNA,Z.P.
TITLE: On the Use of Scirtillation Counter for Dosimetr. (Nekotoryye
             voprosy, svyazanrye s primeneniyem stsintilatsionnykh schet
             chikov v dosimeti ch skikh priborakh) (Russian)
PERIODICAL: Atomnaya Energiya, vol III, Nr 8, pp 157 - 161, 1957 (U.S.S.R.)

ABSTRACT: The use of a scintillator with a connected multiplier in dosi-
             metric devices is to be recommended. The Russian multipliers
             FEU-19 and FEU-25 can be used successfully for such dosimeters
             only if it is possible, by some means, easily to obtain a stabil-
             ization of voltage. The scheme with the corresponding resistance-
             and voltage values is given. In the case of main voltage fluc-
             tuations of $+ 10\%$
                          $- 15\%$ the multiplication coefficient remains un-
             changed (up to $\pm 1\%$) if this so-called selfstabilization is
             employed.

             In order somewhat to compensate the disadvantage of the small
             photocathode of Russian multipliers, a cone-shaped light con-
             ductor, which consists of several cones telescoped into one an-
             other, is used.

Card 1/2

· Keirim - Markus, I.B.

8S -1-12/18

AUTHORS: Istomina, A.G., Keirim-Markus, I.B.

TITLE: Experiments for the Determination of Maximum Acceptability of Thermal Neutrons (Opyty k obosnovaniyu predel'no dopustimykh potokov teplovykh neytronov)

PERICDICAL: Physics and Thermotechniques of Reactors (Fizika i teplotekhnika reaktorov), Supplement Nr 1 to Atomnaya energiya, 1958(USSR) p 136-4S

ABSTRACT: The distribution of protons and γ-doses was determined experimentally on a paraffin model. The protons and γ-doses are created by the capture of thermal neutrons by the human organism $[N^{14}(n,p)C^{14}$ and $H^1(n,\gamma)H^2]$. It was shown that if the relative biological effectiveness is assumed to be equal to 10, the maximum dose efficiency on the surface of the body occurs where the share of proton components predominates. Within the organ γ-radiation is especially effective.
If the flux on the surface of the body amounts to $1 n/cm^2.$sec, an average dose effect of $1.05.10^{-10}$ rep/sec or $2.0.10^{-10}$ BER/sec (biological X-ray equivalent) is produced in the human organs. The maximum dose efficiency on the surface of the body is $2.8.10^{-10}$ BER/sec. Herefrom there follows as the maximum permissible neutron flux on the human body in the course of eight working

Card 1/2

Experiments for the Determination of Maximum Acceptability   8S -1-12/18
of Thermal Neutrons

hours 6200 $n/cm^2.$sec.
The relative biological effectiveness of thermal neutrons is 2 - 3, but not 5 as hitherto assumed. Calculation of the maximum permissible thermal neutron flux in the air results in a value of 1250 $n/cm^2.$sec for eight working hours. This number confirms the standards at present in force. There are 5 figures and 10 references, 7 of which are Slavic.

AVAILABLE: Library of Congress

Card 2/2   Neutrons-Physiological effects

Keirim-Markus, I. B.

89-2-34/35

AUTHORS: Keirim-Markus, I. B., Markelov, V. V.,
             Nikiforov, V. I., Uspenskiy, L. N.

TITLE: A Universal Scintillation Dosimeter (Universal'nyy stsintillyat-
             sionnyy dozimetr).

PERIODICAL: Atomnaya Energiya, 1958,   Nr 2, pp. 218-219 (USSR)

ABSTRACT: In the Medical Academy of Science a portable device was develop-
             ed by which all practical problems of dosimetry can be solved.
             The universal usability is obtained by the replacement of
             scintillation heads. The γ - scintillation head permits to mea-
             sure γ-doses of from 0,25 to 50 mC/sec. The β-counter above all
             serves for the control of β-contaminated surfaces. It is possib-
             le to measure β- currents of from $2,5 \cdot 10^3$ to $2,5 \cdot 10^6$ - β-
             -particles/min. A special scintillation head has been provided
             for, which permits to measure $3 \cdot 10^2$ to $3 \cdot 10^5$ α- particles/min.
             Smaller numbers of particles can be determined with the head-
             phone. The head is insensitive toward β- and γ- radiation.
             For the measurement of thermal neutrons a thin plastic screen
             which contains the phosphor ZnS-Ag, B is used. Neutron currents
             of from 15 to $1,5 \cdot 10^4$ neutrons/cm^2,sec can be measured by
             it. The counter is insensitive to γ-radiation and only weakly
             sensitive to rapid neutrons. An electric circuit diagram for

Card 1/2

89-2-34/35

A Universal Scintillation Dosimeter.

             the device, which weighs 5 kg is also given. There are 2 figures.

AVAILABLE: Library of Congress.

Card 2/2   1. Scintillation counters-Design

ISTOMINA, A.G., KHIRIN-MARKUS, I.B.

Experimental equipment for exposing animals to neutron (FNO-1)
currents. Report No.1:[with summary in English]. Med.rad. 3 no.3
51-61 My-Je '58   (MIRA 11:7)
        (RADIOLOGY, appar. & instruments,
                appliance for irradiation of animals by neutron fluxes
        (Rus))

ISTOMINA, A.G.; KEIRIM-MARKUS, I.B.

Experimental appliance for irradiating animals with streams of
neurtons (ENO-1). Report No.2. Med.rad. 3 no.4:69-75 Jl-Ag '58.
(MIRA 12:3)

(NEUTRONS, effects,
    irradiation of exper. animals, appar. (Rus))

KEIRIM-MARKUS I. B.

AUTHORS: Istomina, A. G. , Kejrim-Markus, I. B.

TITLE: The Determination of the Neutron Dose of Thermal Neutrons by Measuring the Exterior γ-Radiation (Opredeleniyo dozy vozdeystviya teplovykh neytronov po vneshnemu γ-izlucheniyu)

PERICDICAL: Atomnaya Energiya, 1958, Vol. 4, Nr 3, pp. 298-302 (USSR)

ABSTRACT: In order to be able to determine quickly the neutron dose which the human body has taken up, the investigation has been based on the following reflection: After an irradiation by thermal neutrons mainly Na^{24} can be found in the human body. The short-life Cl^{38} has already faded away after 2 - 3 hours. Other activities hardly develop. For measuring a paraffin phantom of the human body was used into which Na had been inserted. A neutron flux of 5000 n/cm^2.sec (reference 2) was assumed as maximum permissible daily dose of thermal neutrons in the irradiation of the human body. Measurings by different Russian apparatus showed that they can unconditionally be used for the mentioned purpose.

Card 1/2 A concentration of the activity at the surface of the phan-

The Determination of the Neutron Dose of Thermal Neutrons by Measuring the Exterior γ-Radiation

ten causes an increase of the dose of the exterior γ-radiation by 15 %.

SUBMITTED: October 21, 1957

AVAILABLE: Library of Congress

1. Neutrons-Dosage determination   2.   Thermal neutrons

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SOV/120-59-4-16/50

AUTHORS: Belov, I. P., Kalugin, K. S., Keirim-Markus, I. B., Nikiforov, V. I., Poroshina, M. S.

TITLE: The ILK-3 Individual Luminescence Dosimeter

ABSTRACT: The apparatus is an improved form of one described in 1955 (Ref 1 - Session of the USSR Academy of Sciences on the Peaceful Uses of Atomic Energy - available in English). The main new features are that an improved phosphor is used, and that a very much better recording circuit has been developed. The phosphor is not described in detail, but is a $CaSO_4$-Mn one.

It is not sensitive to daylight, and so the badges can be handled under normal lighting. Fig 5 shows how the readings decay with time after a single dose at various temperatures (given on the curves, top half of the figure; the abscissa is in days). The second half of this figure shows the effects of changing the temperature. Fig 6 shows the dose response curves (I is for X-rays; II is for ^{60}Co γ-rays; the abscissa scales are in kr). The two parts of Fig 7 show the hardness response; curve 0 is for unfiltered radiation, while curves 1 to 3 indicate the thicknesses of the Cd filters (in mm);

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SOV/120-59-4-16/50

The ILK-3 Individual Luminescence Dosimeter

the meanings of the rest of the caption are clear. (The
abscissa is in MeV). Fig 4 shows the electrical circuit.
The apparatus discharges the phosphor by means of a flash
of infrared light; the resulting light flash is recorded by
the photomultiplier and is integrated by the circuits to
give the dose received. Fig 2 shows the shutter system
used to insert the badges into the photometer head; Fig 3
shows that head. The paper contains 7 figures and 6 ref-
erences, all of which are Soviet.

SUBMITTED: June 3, 1958.

Card 2/2

AUTHOR: Keirim-Markus, I.B.

TITLE: A Study of the Light Sums in the SrS-Eu,Sm Phosphor (Communication I).

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 3, pp 384-397 (USSR)

ABSTRACT: Studies of the light sums stored in crystal phosphors are of practical importance because both flash and thermoluminescent phosphors are used in dosimetry of ionizing radiations (Refs 1-4). For example the SrS-Eu,Sm phosphor is used in the ILK dosimetry method. The present paper describes a study of the storage of electrons, their distribution in traps and of trap parameters in SrS-Eu,Sm. The author used the thermal de-excitation (TD) method. Before experiments phosphor screens were heated to 400°C in order to obtain an initial state of complete de-excitation. Photo-excitation was produced using an SF-4 spectro-photometer as a monochromator. Gamma-ray excitation was produced by Co^{60} source. The TD curves of the phosphor excited with light of 440 mμ wavelength are given in Fig 1. The saturation light sum was reached in 20 min, as shown by the upper part of Fig 1. The form of the TD curves is practically unaltered when the duration of exposure to light is varied by a factor of 50, i.e. the form of the curves is independent of the stored light sum up to saturation. The same is true for γ-excitation (Fig 2). In a later experiment phosphor screens were excited

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SOV/51-7-3-15/21

A Study of the Light Sums in the SrS-Eu,Sm Phosphor (Communication I)

with light of 440 mμ wavelength for 20 min and the TD curves were obtained in the next 20 min. Then the same screens were excited with 440 mμ for 20 min, illuminated with de-exciting light of 630-1400 mμ wavelengths for 20 min and finally the TD curves were reported (Fig 3). The difference between the first and the second set of the TD curves showed that the de-exciting light acts most strongly on the shallow levels and affects the deepest traps only to a very small extent. Fig 4 shows curves constructed from the data of Fig 3 and representing the ratio of the thermoluminescence intensity of an excited phosphor irradiated with de-exciting light to the intensity of emission by a phosphor not subjected to de-excitation with light. If the phosphor has traps with different sensitivities to the de-exciting light the curves of Fig 4 should be stepped and the plateaus on these curves should occur at the positions of individual thermoluminescence peaks. In agreement with theory such plateaus are in fact observed (Fig 4) corresponding to peaks at 60, 100, 130, 160, 200, 250, 300 and 320°C. A second series of experiments consisted of recording of TD curves after heating the phosphor screens to high temperatures. Fig 5 shows the TD curves of a phosphor excited with a 1200 r dose of γ-rays, which was then heated to a high temperature T (280-338°C) in 5-6 min, held at that temperature for 2-3 min and then rapidly cooled to room temperature. Fig 5 shows that

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A Study of the Light Sums in the SrS-Eu,Sm Phosphor (Communication I).

the maxima of the TD curves were displaced by this treatment to temperatures above 300°C and their half-width was reduced. Increase of the temperature (T) of this short heating from 305° to 338°C did not greatly affect the displacement of the TD curves and the half-width of the peaks was practically unaltered. These experiments prove that in the SrS-Eu,Sm phosphor there is a complex spectrum of capture levels and that in the phosphor which was heated to a high temperature for a few minutes levels of only one type remain populated, i.e. the curves of Fig 5 are simple TD curves. Trap Parameters deduced from the curves of Fig 5 and in other ways show that in the case of very deep traps, thermoluminescence is a process with kinetics of the first order, i.e. the probability of repeated capture is small. Knowing the parameters of the deepest traps the experimental curves can be analysed into their components which are simple TD curves. The results of such an analysis are shown in Figs 7-10. From these figures the distribution of electrons in traps can be estimated. The proportions of electrons (n_{0i}) captured by traps of a given depth E_i are shown in Figs 7-10 in the form of vertical lines with heights proportional to n_{0i}. The trap depths were found to be 1.0, 0.96, 0.91, 0.85, 0.78, 0.72, 0.68 and 0.56 eV. Comparison of the curves obtained on γ- and photo-excitation show that on γ-excitation the deepest levels with $E = 1.0$, 0.96, 0.91 eV are filled most strongly, while levels

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SOV/51-7-3-15/21

A Study of the Light Sums in the SrS-Eu,Sm Phosphor (Communication I)

with ε = 0.72 eV are practically unfilled and electrons are completely absent from very shallow levels with ε = 0.56 eV (this absence is due to losses during excitation). The author discusses also the probability of thermal liberation of captured electrons and compares it with the change in the magnitude of a flash emitted by an excited phosphor after storage for periods up to twelve days (Fig 11). This phosphor was used as the active element of ILK dosimeters. The author suggests that the increase in the dosimeter readings on lowering of temperature is due to an increase in the flash yield while the fall in the dosimeter readings on increase of temperature is due to quenching. From the absorbed γ-ray energy the author deduces the light-sum energy yield (η), i.e. that part of the energy transferred to the phosphor on excitation which is stored as a light sum. For the SrS-Eu,Sm phosphor excited with γ-rays η = 0.09. In further studies the author investigated dependence of the light sum on exposure or dose. Figs 1 and 2 show that the distribution of electrons in traps is unaltered even when the light sum approaches its saturation value. Simultaneously, on approach of saturation the light sum yield on photo-excitation slowly decreases. On excitation with γ-rays the yield remains constant within wide limits.

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SOV/51-7-3-15/21

A Study of the Light Sums in the SrS-Eu,Sm Phosphor (Communication I)

The light sum is still proportional to the γ-ray dose at 1200 r. This can be seen in Fig 13 which shows ILK dosimeter readings (as the ordinate), which are proportional to the light sum against dose (the abscissa). From the curves of Fig 13 and other data the author concludes that the limiting value of the stored light sum is governed by filling of deep traps and that the de-exciting action of γ-rays is of little importance. Acknowledgments are made to V.V. Antonov-Romanovskiy who directed this work and to Z.A. Trapeznikova, M.V. Fok, N.A. Sergeyeva and Ye.Yo. Bukke. There are 13 figures, 2 tables and 18 references, 12 of which are Soviet, 5 English and 1 translation from English into Russian.

SUBMITTED: September 26, 1958

Card 5/5

AUTHOR: Keirim-Markus, I.B.   SOV/51-7-4-16/22

TITLE: Investigation of Light-sums in the SrS-Eu,Sm Phosphor. II.

PERIODICAL: Optika i spektroskopiya, 1959, Vol 7, Nr 4, pp 537-541 (USSR)

ABSTRACT: In Part I (Ref 1) the author reported an experimental study of the
               dependence of the stored light-sum on the γ-ray dose. It was found
               that on γ-ray excitation the light-sum rises linearly with dose up to
               doses at which the light-sum amounts to 60-70% of the saturation value.
               On photo-excitation, on the other hand, the light-sum stored was a
               non-linear function of absorbed energy. The present paper is a theoretical
               discussion of the results reported in Part I. The author compares γ-ray
               excitation of the phosphor with photo-excitation in the region of the
               activator absorption. On excitation with light photons are absorbed
               by luminescence centres and ionize them. Holes are captured either
               by Eu^{2+} ions or are localized at neighbouring lattice sites while
               electrons migrating along the crystals are captured by various traps.
               One absorbed photon produces no more than one electron-hole pair.
               Photo-excitation is uniform throughout the bulk of the phosphor. When
               the phosphor is irradiated with γ-rays excitation is due to fast
               secondary electrons whose energy is transferred to ions of SrS, because
Card 1/2   the activator concentration is small (there are 10^4 SrS groups per one

Investigation of Light-Sums in the SrS-Eu,Sm Phosphor. II.

Eu^{2+} ion and over 10^5 SrS groups per one Sm^{3+} ion). Excitation channels are formed along secondary electron tracks. Since electrons and holes migrate along random directions, suffering multiple scattering on the way, the effective radius of the channels can be reasonably taken to be between 10^{-4} and 10^{-5} cm. It follows that there is one electron-hole pair in a volume of 5×10^{-14}-5×10^{-16} cm^3 in which there are 3×10^4-3×10^2 Eu^{2+} ions and 3000-30 Sm^{3+} ions. In other words excitation is comparatively weak in the channels produced by secondary electrons. As long as the excitation channels do not overlap, i.e. at not too large doses, the brightness of the flash and afterglow is proportional to the number of channels which in turn is proportional to the dose and this is independent of the kinetics of recombination processes in the channels (Ref 2). The reasoning just given explains why ILK dosimeter readings are proportional to those in a wide range of doses. The author discusses also independence of the light-sum yield when the concentration of free electron traps decreases considerably. Acknowledgments are made to V.V. Antonov-Romanovskiy who directed this work and to M.V. Fok for their advice. There are 2 figures and 6 Soviet references.

Card 2/2

SUBMITTED: September 26, 1958

85339

9,6150

S/120/60/000/005/007/051
E192/E382

AUTHORS: Keirim-Markus, I.B., Lushchikhin, A.M.,
            Markelov, V.V. and Uspenskiy, L.N.

TITLE: Universal Scintillation Radiometer PYC-3 (RUS-3)
            Note I. The Measuring Unit

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 5,
            pp. 35 - 40

TEXT: The following requirements were taken into account in
the design of the instrument: 1) small size, light weight
and portability; 2) the instrument should be supplied from
110 - 220 V mains as well as from batteries or accumulators;
3) the measuring meter and the electronic circuits should
produce an error of not more than $\pm$ 30%; 4) the measuring
range should extend from 1/2 to 100; 5) the instrument should
not be affected by atmospheric or climatic conditions. The
resulting instrument is illustrated in the detailed circuit
diagram of Fig. 1. The input device of the instrument is a
photomultiplier which is connected to the electronic unit by
means of a cable having a length of about 1 m. The multiplier
is followed by an emitter-follower pre-amplifier, based on a

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E192/E382

Universal Scintillation Radiometer RUS-3. Note I. The Measuring Unit

high-frequency transistor (cut-off frequency of 60 Mc/s). The emitter-follower is followed by an amplifier-shaper circuit based on transistors $\Pi\Pi_2$ and $\Pi\Pi_3$. The first transistor acts as the pulse amplifier, while the second transistor performs the shaping of the pulse. The presence of the resistor in the emitter of $\Pi\Pi_2$ ensures that the amplifier is stable.

The output pulse obtained from the shaping stage has a duration of about 10 μs and its amplitude is 7 V (when the supply voltage is 8 V). The shaping stage is followed by an integrating circuit which is preceded by an emitter-follower (transistor $\Pi\Pi_4$). The integrating circuit has three different capacitances which correspond to the ranges of 30, 300 and 3 000 pulses/sec. The circuit is followed by another transistor stage which is connected to a microammeter which indicates directly the number of pulses per second. The upper portion of the diagram in Fig. 1 illustrates the supply sources for the instrument. The

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Universal Scintillation Radiometer RUS-3.   Note I.   The
Measuring Unit

photomultiplier requires a stable voltage of 1200 V. This
potential is obtained from an oscillator based on a transistor,
type ПЗ-В (P3-V), and a suitable transformer. This oscillator
operates satisfactorily even with input voltages as low as 3 V.
The current taken by it (at 3 V) is about 81 mA. The supply
voltage produced by the generator changes by about 3% when the
input voltage is changed from 3 to 10 V. It can be seen that
the instrument can be supplied with battery voltages from 3 to
12 V; as regards the mains voltage, this can vary from 80 to
250 V. In order to cover this range of AC voltages it is
advised that a ferroresonant stabiliser followed by a rectifier
be employed. In such a system it is possible to reduce the
voltage changes to about 8 V when the input varies from 80 to
250 V. Constructionally, the instrument is in the form of
small units which can easily be withdrawn and repaired or
replaced by new units. The overall weight of the instrument
with a set of batteries is about 3 kg. A photograph of the

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Universal Scintillation Radiometer RUS-3.   Note I.   The
Measuring Unit

instrument is given in Fig. 2. The authors express their
gratitude to G.M. Skachov for taking part in the construction
of the instrument. There are 2 figures and 1 Soviet reference.

SUBMITTED: August 13, 1959

Card 4/4

KEYRIM-MARKUS, I.B.; MARKELOV, V.V.; USPENSKIY, L.N.

Method of simultaneous control of pollution of surfaces with α- and β-substances. Med.rad. 5 no.10:68-72 '60.   (MIRA 14:2)
                    (RADIATION—MEASUREMENT)

21.8100

78323
SOV/89-8-3-8/32

AUTHORS: Istomina, A. G. , Keirim-Markus, I. B.

TITLE: Maximum Permissible Doses of Intermediate Energy
              Neutrons and Their Measurement

PERIODICAL: Atomnaya energiya, 1960, Vol 8, Nr 3, pp 239-247
              (USSR)

ABSTRACT: The authors give a summary of effects due to neutrons
              of intermediate energy (0.2 ev to 1 mev) as described in
              scientific literature. They note that, as a rule, the
              intermediate electrons are a result of slowing down of
              fast neutrons, and in weakly absorbing media their
              characteristic spectrum $\varphi (E)dE$ is proportional to
              dE/E. These neutrons are not easy to measure, and this
              is one of the reasons that up to the present time they
              are not taken into account in dosimetric practice although
              they often constitute a substantial part of the total
              neutron flux. The contribution to the absorbed dose
Card 1/8   from the intermediate neutrons is also increased due

Maximum Permissible Doses of Intermediate   78323
Energy Neutrons and Their Measurement   SOV/89-8-3-8/32

to the fact that intermediate neutrons affect the
organism more strongly than the thermal ones. P. A.
Yampol'skiy, L. A. Chudov, G. G. Petrov, and A. M.
Kogan of Institute of Chemical Physics AS USSR (Insti-
tut khimicheskoy fiziki (IKhF) AN SSSR) computed in
1956 the absorbed doses of neutron flux incident on
a half-space filled with paraffin without taking
into account absorption by heavy nuclei. They com-
puted the maximum permissible absorption dose assum-
ing the relative biological efficiency (RBE) for
protons to be 2, 4.5, and 10. Results are on Fig. 2.
The authors point out, however, that the maximum
absorbed dose does not always determine the biologi-
cal effect of the radiation. The RBE is different
for various kinds of exposure and depends on the
reaction of the organism to radiations which may be
in the form of prolonged weak doses, may vary at
various depths of the tissue, or may consist of short
but very strong exposures. The authors computed the
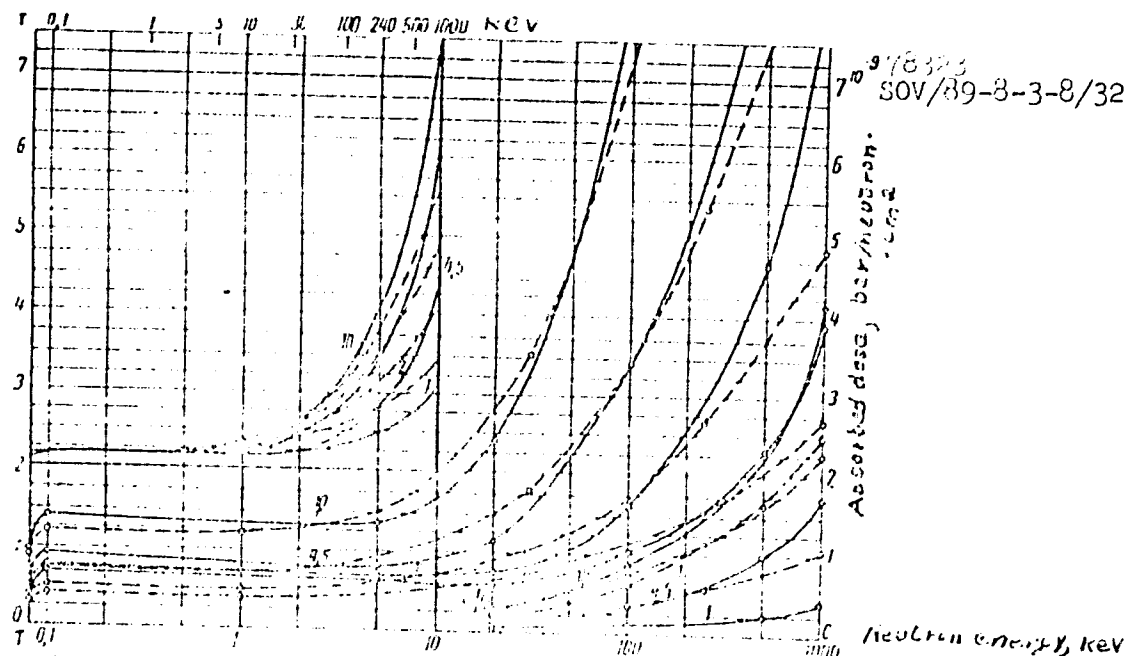
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Fig. 2. Maximum absorption dose for a layer of tissue exposed to a unit flux of neutrons. Numbers at curves—RBE values for protons used; ——— data from W. Snyder, J. Neufeld, ORNL-LR-DW 1194-1205; — — — data from IKhF AS USSR. Top curves normalized to values at 1 kev.
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Maximum Permissible Doses of Intermediate
Energy Neutrons and Their Measurement.

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SOV/89-3-3-8/32

average tissue dose for a 30-cm layer using various
RBE values (see Fig. 3). As seen on Figs. 2 and 3 all
curves differ from one another, and the authors con-
clude that the tendency of some investigators to try to
obtain best dosimeter tissue-equivalent is not always
justified. Using curves from Figs. 2 and 3 the authors
computed the average absorbed dose per unit flux of
intermediate neutron obeying a 1/E spectrum. They used
the equation:

$$D = \frac{\int_{E_1}^{E_2} D(E)\varphi(E)\,dE}{\int_{E_1}^{E_2} \varphi(E)\,dE} \qquad (1)$$

with $E_1 = 0.4$ ev and $E_2 = 0.5$ mev. In the equation
$D(E)$ = absorbed dose per unit flux of neutrons with
energy E; $\varphi(E)dE$ = flux of neutrons with energies

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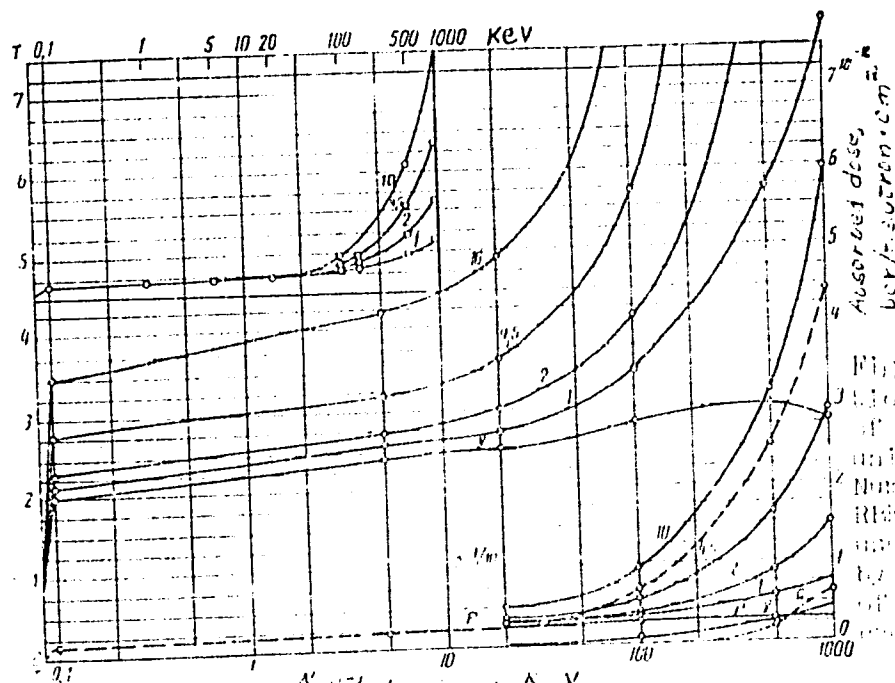
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Fig. 3. Average absorption dose for a layer of tissue exposed to a unit neutron flux. Numbers of curves—RBE value for protons and. Dose absorbed by separate components of the secondary radiation in iβ

rad units; (γ) γ-radiation; (p) protons; (·) heavy recoil nuclei.
Top curves are normalized to values at 1 kev.   Card 5/8

Maximum Permissible Doses of Intermediate
Energy Neutrons and Their Measurement   SOV/89-8-3-8/32

between E and E + dE. The authors show also that the
absorbed dose per intermediate neutron is 2-4 times
larger than the dose per thermal neutron. The maximum
permissible flux of intermediate neutron for a 6-hr
working day is 630 neutrons/cm²·sec, while one can be
exposed to up to 1,650 to 2,600 thermal neutrons/cm²·sec.
(Editor's note: Data obtained by the authors for the
amount of the maximum permissible flux of intermediate
energy neutrons do not constitute officially accepted
norms.) Dosimeters which would follow the curves on
Figs. 2 and 3 do not exist, so the authors advise a
splitting of the neutron spectrum into a thermal region
with Maxwellian velocity distribution, intermediate with
a 1/E distribution, and a fast neutron region with the
spectrum of fission neutrons. Each part should then be
measured separately. The authors finally discuss the
various methods for neutron registration. After review-
ing the activation method, the ionization chambers and
counters filled with BF₃, scintillation counters, and

Card 6/8   fission chambers and counters with solid radiators, the

Maximum Permissible Doses of Intermediate
Energy Neutrons and Their Measurement

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authors conclude that, of all the detectors considered,
the only ones acceptable for the registration of inter-
mediate neutrons are the slow neutron detectors made of
gold, B^{10}, or U^{235}, screened by a cadmium (or boron)
layer. They emphasize that at the present time there
does not exist an acceptable method for measuring
simultaneously all the important parts of the spectrum.
The long counter described by Nobles and Smith (see
ref) could represent an exception. Choosing a particular
configuration of the moderator and absorbers, one may
hope to achieve the relationship between the efficiency
and energy shown on Figs. 2 and 3. There are 4 figures;
2 tables; and 28 references, 10 Soviet, 5 U.K., 13 U.S.
The 5 most recent U.S. references are: M. Davis,
D. Hauser, Nucleonics, 16, Nr 3, 87 (1958); B. Brown,
E. Hopper, Nucleonics, 16, Nr 4, 96 (1958); H. Rossi,
G. Failla, Nucleonics, 14, Nr 2, 32 (1956); R. Nobles,

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20569

S/120/61/000/001/027/062
E032/E114

$\mathcal{26.2246}$

AUTHORS: Keirim-Markus, I.B., Lushchikhin, A.M., Markelov, V.V.,
              and Uspenskiy, L.N.

TITLE: The Universal Scintillation Radiometer YS-3 (RUS-3).
              II. γ- and β-Probes

PERIODICAL: Pribory i tekhnika eksperimenta, 1961, No.1, pp. 86-91

TEXT: The first part of this paper is given in Ref.5.   In
accordance with the design specifications for the YS-3 (RUS-3)
radiometer, the dose-rate range of the instrument should be
1-250 μr/sec.   This corresponds to a γ-ray flux between 1.6×10^3
and 4×10^3 γ quanta/cm^2sec.   In order to achieve the required
accuracy of $\pm 30\%$ at the lower limit, it is necessary to record
about 10 pulses over a time interval of $\tau = RC = 3$ sec.   It
follows that the minimum recorded counting rate should be about
3 pulses/sec and the efficiency of the probe with a 1 cm^2 screen
should be about 0.2%.   Such a low efficiency can be achieved with
an inorganic crystal of about 0.1 cm^3, or a larger organic crystal.
For practical reasons a polycrystalline stilbene screen (phosphor),
25 mm in diameter and about 150 mg/cm^2 thick, was used.   The screen
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S/120/61/000/001/027/062
E032/E114

The Universal Scintillation Radiometer ... -3 (RUS-3).
II. γ- and β-Probes

was produced by compressing stilbene powder under a pressure of
700-800 kg/cm^2 at 100 °C.   The design of the γ counter head is
shown in Fig.2.   The counter head consists of a cylindrical steel
envelope 10 which serves as a magnetic and electrostatic screen
for the ...γ -25 (FEU-25) photomultiplier 9 .   The lid 17 can be
rotated and carries a standard specimen of Tl^{204} which has a
half-life of about 4 years. By rotating the lid the standard
specimen can be brought to face the phosphor 20 through a special
aperture in the plate 13 .   The standard source is used to check
the operation of the instrument.   The β-probe is illustrated in
Fig.5.   The phosphor 24 is again made of stilbene and has a
thickness of 40 mg/cm^2 and a total area of 100 cm^2.   It is mounted
on the conical light guide 20 which connects it to the ...γ-29
(FEU-29) photomultiplier 15 .   The stilbene screen (phosphor) is
covered by a synthetic film with an evaporated layer of aluminium
27, having a total thickness of 4.5 mg/cm^2. The probe is
calibrated by means of a standard Tl^{204} specimen 17 which is
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of the probes.   There are 5 figures and 14 references: 9 Soviet,
4 English and 1 German.
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ACCESSION NR: AR3000547   8/0031/63/000/007/0416/0416

SOURCE: Rzh. Khimiya, Abs. 7K61

AUTHOR: Keirim-Markus, I. B.; Syritakaya, Z. M.; Yakubik, V. V.

TITLE: Steklo. Byul. Gos. n.-i. in-ta stekla, no. 2 (111), 1961, 77-89

CITED SOURCE: Study of thermoluminescent aluminophosphate glasses

TOPIC TAGS: thermoluminescent aluminophosphate glasses; gamma irradia-
tion

TRANSLATION: A study was made of the effect of gamma-irradiation on
brilliance of luminescence of aluminophosphate glasses activated with
Cu sub 2 0, Ag sub 2 0, SnO sub 2, PbO, Sb sub 2 0 sub 3, Bi sub 2 0
sub 3, Cr sub 2 0 sub 3, and other oxides used in crystallophosphors.
Synthesis of glasses having the composition (in % by weight): Al sub
2 0 sub 3. 3P sub 2 0 sub 5, 50, metaphosphates of elements of Groups

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ACCESSION NR: AR3000547

I and II of periodical system, 50; was carried out in crucibles having a capacity of 0.5 liter, in furnaces with silit heaters (for glasses of melting point 1400°) or in a kerosene furnace. The glass measuring 15x15x4 mm was irradiated with preparations of Co sup 60 at a dose of about 2 . 10 sup 4 roentgens. The best thermo-luminescence effect was exhibited by glasses activated with Mn, Cu and Ce in the form of the lower oxide. Brilliance of the glow undergoes no decrease for 1 month after irradiation. The glasses are recommended as dosimeters of gamma-radiation. Orig. art. has 11 references. A. Armenyan

DATE ACQ: 21May63   ENCL: 00   SUB CODE: 00

Card   2/2

S/120/61/000/006/034/041
E194/E485

AUTHORS: Bochvar, I.A., Keirim-Markus, I.B.

TITLE: A heating device for investigating thermal
             luminescence

PERIODICAL: Pribory i tekhnika eksperimenta, no. 6, 1961, 139-140

TITLE: This article describes equipment used in studying the
thermal luminescence of glass in which disc shaped specimens
weighing 1 to 2 g can be heated at a rate of 70°C per minute to
a temperature of 350 to 400°C, measured by a thermocouple. The
visible radiation is measured by a photo-electron multiplier type
ФЭУ-29 (FEU-29) which has an amplification factor of 10^6. With
the photo-cathode at a distance of 26 mm from the specimen, a
cathode of 39 mm diameter observes 10% of the total solid angle
and, because of reflection from a brass plate beneath the specimen,
the proportion of solid angle actually recorded is greater than
this. The equipment is screened and water cooled to avoid
heating the photo-electron multiplier. There are 1 figure and
1 Soviet-bloc reference.

SUBMITTED: April 3, 1961

Card 1/1

KEIRIM-MARKUS, I. B.; MAREY, A. N.; USPENSKIY, L. N.; YAKOVLEV, A. S.
    YARTSEV, Ye. I.

Rapid method for the intravital determination of Sr^{90} in human
and animal organisms. Med. rad. no.12:51-55 '61.
                                        (MIRA 15:7)

    (STRONTIUM—ISOTOPES)   (RADIOACTIVITY—MEASUREMENT)

S/560/62/000/012/004/014
I063/I263

AUTHORS: Ivanov, V.I., Keirim-Markus, I.B., and Kovalev, Ye.Ye.

TITLE: Cosmic radiation doses

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli, no.12, 1962, 35-46

TEXT: Data on primary cosmic radiation, radiation from solar outbursts and radiation belts surrounding the earth above the atmosphere, previously published in Soviet and Western scientific papers, are studied in relation to man's flight in space. These are used as a basis for a theoretical calculation of the "biological doses" within and outside a space-ship. The "biological dose" of radiation is determined by: 1) the quantity of radiation absorbed by a given tissue and 2) the relative effectiveness of the radiation depending on its nature. Conclusions are drawn as to the required thickness of a protective aluminium shell, concerning the daily dose of natural radiation absorbed by man on earth, and the safe limit of professional irradiation.

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S/560/62/000/012/004/014
I063/I263

Cosmic radiation doses

The "biological dose" of each component of the primary cosmic radia-
tion is calculated on the basis of data on the linear density of
energy loss of this radiation in NaJ (Vernov, S.N., Chudakov, A.Ye.
et al., Rep. Akademiya nauk SSSR, 125, 304, 1959.)
The power of the penetrating radiation of solar outbursts is cal-
culated according to the formula:

$$P_{ion} = 1.60 \times 10^{-8} \cdot 3600 \int \phi \ (R + R_1) \ S \ (R) dR (rad/hour^{-1}),$$

where P_{ion} = power of the absorption dose connected with ionization
losses of protons, ϕ (R)dR = proton flux with path from R to R+dR
(in g.cm^{-2}), S(R) = ionization loss of protons with path R, R_1 =
thickness of the absorber.
Assuming an exponential function for the energetic spectrum of pro-
tons and using an approximate relation between E and R, the maximal
biological doses absorbed by an organism within a space-ship are
determined for different thicknesses of the protective shell. A
similar formula is used for the power of the internal radiation belt

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S/860/62/000/012/004/014
I063/I263

Cosmic radiation doses

surrounding the earth. Here the doses are calculated also outside
the space-ship where electrons and low-energy protons must be taken
into account.
A protective shell of 1 g.cm.$^{-2}$ aluminium is sufficient against the
electrons of the external radiation belt, but a Bremsstrahlung is
produced at the walls of the ship. Its intensity in the center of a
container is calculated theoretically and the results are compared
with direct measurements performed by means of a scintillator in the
first Soviet rocket (Vernov, S.H., Chudakov, A.Ye., U.F.N. 70, 585,
1960). A satisfactory agreement is obtained if the energies of the
high-energy electrons in the external radiation belt are more than 2
MeV. There are 2 tables. The most important English language re-
ferences are:
J.A. Van Allen, L.A. Frank, Nature, 183, 430, 1959.
J.A. Van Allen, L.A. Frank, Nature, 184, 219, 1959.
D.D. Kerlee, O.K. Krienke, Phys.Rev. 115, 137, 1959.
E.P. Hey, J.R. Winckler, P.S. Freier, Phys.Rev.Lett. 3, 183, 1959.

SUBMITTED: May 30, 1961
Card 3/3

S/560/62/000/012/005/014
I063/I263

AUTHORS: Keirim-Markus, I.B., Kovalev, Ye.Ye., and Uspenskiy, L.N.

TITLE: Measurements of the radiation doses in the second, fourth and fifth cosmic ship satellites

SOURCE: Akademiya nauk SSSR. Iskusstvennyye sputniki Zemli, no.12, Moscow, 1962, 47-50

TEXT: The orbits of these ship satellites passed below the earth's radiation belts, at a distance of 180 to 340 km. from its surface. The only sources of penetrating radiation were therefore: 1) the primary cosmic radiation; 2) the radiation of the solar outbursts. The integral radiation doses were measured with luminescent dose-meters (I.P.Belov, K.C.Kalugin, J.B.Keirim-Marcus et al., Pribory i tekhnika eksperimenta, no.4, 74, 1959), photodosemeters (J.B.Keirim-Markus, A.P.Pesotskaya, Sbornik radiometricheskikh i dozimetricheskikh metodik, Medgiz, 1959, p.311) and others. A component analysis of the radiation was performed by means of lead and aluminium filters. A mean daily dose of 6-10 m rad was recorded. This result is

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S/560/62/000/012/005/014
I063/I263

Measurements of the radiation doses...

in full accordance with the calculated value of the primary cosmic radiation (V.I.Ivanov, I.B.Keirim-Markus, Ye.Ye.Kovalev, Iskusstvennyye sputniki Zemli, no.12, p.35). No solar outburst radiation was observed, but a Bremsstrahlung of about 1000 keV was registered in the second ship, apparently due to a flight within the external radiation belt of the earth. There is 1 table.

SUBMITTED: May 27, 1961

Card 2/2

KEYRIM-MARKUS, I. B., KUZNETSOVA, S. S., LITVINOVA, E. G., SOKOLOVA, I. K., STUKINA, L. E., AFANAS'YEV, V. P.,

"Production and investigation of dose fields for irradiation of experimental animals with protons of high energy"

report to be submitted for the Symposium on Biological Effects of Neutron Irradiations (IAEA), Upton Long Island, N. Y., 7-11 Oct 63.

L 19451-63   EWT(1)/FCC(w)/FS(v)-2/BDS/ES(a)/ES(j)/ES(c)/ES(k)/ES(t)-2/EEO-2/
ES(v)   AFFTC/ASD/AMD/AFMDC/ESD-3   Pb-4/Pi-4/Po-4/Pq-4/Pe-4   TT/A/AR/RD/K/DD
ACCESSION NR: AP3007350   S/0293/63/001/001/0179/0181

AUTHOR: Keirim-Markus, I. B.; Sergeyeva, N. A.; Uspenskiy, L. N.

TITLE: Doses of radiation absorbed by Nikolayev and Popovich during their group flight

SOURCE: Kosmicheskiye issledovaniya, v. 1, no. 1, 1963, 179-181

TOPIC TAGS: radiation dosimeter, ILK dosimeter, DKP-50 dosimeter, IKS dosimeter, IFKN photodosimeter, space flight, RBE, bremsstrahlung

ABSTRACT: In addition to ILK dosimeters, Nikolayev and Popovich carried DKP-50 (2 to 50 r) dosimeters in special pockets located on their right hip, large glass IKS dosimeters (for detection of γ-rays and high-energy protons in the 0.02 to 2×10^6 rad range) in special abdominal pouches of their oversuits, and IFKN photodosimeters with NIKFI photoplates of the "R" and "Ya" types (for the detection of heavy charged particles and products of nuclear interaction). Absorbed doses were too small to be registered by the DKP-50 or the small IKS glass dosimeters. Average dosimeter readings in mrad for other instruments are shown in Table 1 of the Enclosure. For the

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L 19451-63
ACCESSION NR: AP3007350

calculation of absorbed doses in biological tissue, a correction factor of 1.15 was applied to the ILK and IFKN readings and 1.1 to the IKS reading. Absorbed doses in tissue mrad are shown in Table 2. The average absorbed dose in tissue mrad/hr was 0.65 ±0.03 for Vostok-3 and 0.65 ±0.07 for Vostok-4 as compared with 0.36 for the second orbital spaceship and 0.4 for Vostok-2. The bremsstrahlung for Nikolayev and Popovich was 0.07 to 0.08 mrad/hr, while Titov's was 0.17 to 0.23 mrad/hr. Nikolayev's total bremsstrahlung dose with quantum energies of 200 to 500 Kev was 8 ±4 mrad. IFKN data indicate that the upper limit for absorbed doses of thermal neutrons was 5 x 10^7 neutrons/cm^2 while the upper limit for intermediate and fast neutrons in spaceship cabins was 10^7 neutrons/cm^2. Assuming an RBE factor of 7, the absorbed tissue dose received by the cosmonauts during flight becomes 0.43 ber for Nikolayev and 0.32 ber for Popovich. Orig. art. has: 2 tables.

ASSOCIATION: none

SUBMITTED: 17Oct62   DATE ACQ: 21Oct63   ENCL: 02

                            NO REF SOV: 007   OTHER: 007

SUB CODE: AM
Card 2/2

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirim-Markus, I. B.; Prosina, T. I;
Syritskaya, Z. M.; Yakubik, V. V.

TITLE: Ionizing radiation dosimeters based on measurement of thermolumines-
cence of aluminophosphate glasses (IKS dosimeters)

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 48-52

TOPIC TAGS: ionization dosimeter, aluminophosphate glass, Beta-radiation
measurement, Gamma-radiation measurement, slow-neutron measurement, synchro-
cyclotron, high-energy proton, IKS dosimeter

ABSTRACT: Ionization dosimeters made of aluminophosphate-covered glass were
developed for measuring β- and γ-radiation, slow neutrons, and high-energy
charged particles in the range from 0.02 to $(1-2) \cdot 10^8$ rads. The dosimeters
operate on the following principle: the energy of ionizing radiation absorbed
by the glass is stored in it in the form of light sum of the luminescence,
which is emitted during heating of the glass and can then be recorded. The
dosimeters are capable of accumulating and storing information over long
periods, e.g., up to a month at 150C. While the dosimeter glass is not

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L 12861-63
ACCESSION NR: AP3003975

excited by daylight, an exposure of 40 days results in de-excitation of the stored light by 26—38%. The effective atomic number for the optimum composition of glasses is 11-13. A filter consisting of 0.6 mm Sn + 0.5 mm Al allows for compensation of the energy dependence at 40 Kev and above with an error of ± 20%. The dosimeter was tested using the synchrocyclotron of the Ob"yedinenny*y institut yaderny*kh issledovaniy (Joint Institute of Nuclear Research) with proton fluxes in the energy range of 100 to 500 Mev showed that the sensitivity of the detector glass to the tissue dose of high-energy protons coincides within 10% with the sensitivity of glass to γ-rays, indicating that the detector can be used for mixed p- and γ-radiation. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 19May62   DATE ACQ: 08Aug63   ENCL: 00

SUB CODE: NS   NO REF SOV: 002   OTHER: 007

Card 2/2

L 19447-63   EWT(l)/EWP(q)/EWT(m)/FCC(w)/FS(v)-2/FCS/BDS/ES(a)/ES(j)/ES(c)/
ES(k)/ES(s)-2/ES(t)-2/ES(v)/EEO-2   AEDC/AFFTC/ASD/AFMDC/ESD-3/APGC/SSD   Pb-4/
Pi-4/Pt-4/Po-4/Pe-4/Pq-4   TT/A/WH/AR/RD/K/DD

ACCESSION NR: AT3006866   S/2560/63/000/015/0102/0103

AUTHOR: Keirim-Markus, I. B.; Kovalev, Ye. Ye.; Sergeyeva, N. A.;
Uspenskiy, L. N.

TITLE: Measurement of doses of radiation received by Yu. A. Gagarin
and G. S. Titov during the first space flights

SOURCE: AN SSSR. Iskusst. sputniki Zemli, no. 15, 1963, 102-103

TOPIC TAGS: radiation dosimeter, ILK dosimeter, IFKN photodosimeter,
proton, neutron, Gamma radiation, thermoluminescent glass

ABSTRACT: Cosmonauts Gagarin and Titov carried ILK luminescent
dosimeters in the breast pockets of their oversuits. Each cosmonaut
carried three dosimeters with 3.2-mm Al filters, three with 1.3-mm
Pb filters, and one without a filter. The dosimeter readings for
Gagarin were: 2.9, 2.4, and 1.3 mrad for Al filters; 0.8, 2.2, and
3.0 mrad for Pb filters; and 1.6 mrad without a filter. The readings
for Titov were: 12.0, 12.4, and 15.0 mrad for Al filters; 8.0,
10.0, and 8.0 mrad for Pb filters; and 12.0 mrad without a filter.
Control dosimeters on the ground registered 0.5—0.6 mrad per diem.
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L 19447-63
ACCESSION NR: AT3006866   2.

The two cosmonauts also carried IFKN photodosimeters for the detec-
tion of neutron and γ-radiation in special pockets located on the
belt of the inner suit.   In addition, Titov carried a thermolumines-
cent glass for the registration of γ-rays and high-energy protons
(from 0.1 to 10^6 rad) in a breast pocket. Bremsstrahlung with an
energy of 10^5 ev was recorded for Titov.   The dose of primary cosmic
radiation for the two cosmonauts was 0.4—0.6 mrad per orbit.   The
similarity of results in the two flights indicates that primarily
cosmic radiation was received and that solar flares had little effect.
Assuming the RBE to be 7, the absorbed dose received by Titov did
not exceed 60 mber. Orig. art. has: 1 table.

ASSOCIATION: . none

SUBMITTED: 14Jul62   DATE ACQ: 29Jul63   ENCL: 00

SUB CODE: AM   —   ——————NO REF SOV: 007   OTHER: 001

Card 2/2

KEIRIM-MARKUS, I.B.; KORNEYEV, V.T.; MARKELOV, V.V.; USPENSKIY, L.N.

Measuring the tissue doses of neutrons outside the reactor shielding.
Atom. energ. 15 no.5:386-393 N '63.   (MIRA 16:12)

ACCESSION NR: AP4034803   S/0293/64/002/002/0304/0306

AUTHOR: Bochvar, I. A.; Vasil'yeva, A. A.; Keirim-Markus, I. B.;
Prosina, T. I.; Sergeyeva, N. A.; Uspenskiy, L. N.

TITLE: Tissue dose of cosmic radiation received by V. F. Bykovskiy and
V. V. Tereshkova during tandem orbital flight

SOURCE: Kosmicheskiye issledovaniya, v. 2, no. 2, 1964, 304-306

TOPIC TAGS: tandem flight, Vostok 5, Vostok 6, cosmic radiation,
thermal neutrons.

ABSTRACT: Dosimetric readings taken during tandem orbital flights of
the Vostok-5 (Bykovskiy) and the Vostok-6 (Tereshkova) show that the
cosmic radiation doses absorbed by cosmonauts were 80 $\pm$5 mrad and
44 $\pm$5 mrad, respectively. Comparison of the above figures with measure-
ments taken during preceeding flights show that the average intensity
of the absorbed radiation was 0.65 mrad x hr^{-1} or 16 mrad x 24 hr^{-1}.
The estimates of absorbed doses of thermal neutrons were $(1\pm15)\cdot10^{-4}$ and
$(7\pm15)\cdot10^{-4}$ rem for the Vostok-5 and the Vostok-6, respectively. There-
for the respective fluxes of thermal neutrons were $(1\pm16)\cdot10^{5}$ and

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ACCESSION NR: AP4034803

$(8 \pm 16) \cdot 10^5$ cm^{-2} while their densities were 0.2 ±4 and 3 ±7 cm$^{-2} \cdot$sec^{-1}, respectively. The radiation levels on the outer skin of the space capsules were approximately 2—3 times higher than inside the space ships.

ASSOCIATION: none

SUBMITTED: 14Oct63   DATE ACQ: 20May64   ENCL: 00

SUB CODE: AM   NO REF SOV: 004   OTHER: 002

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L 14342-65   EWG(j)/EWT(m)   AFWL/SSD/AND/AFTC(b)/ESD(t)   Pb-4
ACCESSION NR: AP4046446   S/0205/64/004/005/0775/0781

AUTHOR: Afanas'yev, V. P.; Keirim-Markus, I. B.; Kovalev, Ye. Ye.;
Kuznetsova, S. S.; Sakovich, V. A.; Smirenny*y, L. N.; Sokolova, I. K.;
Sychkov, M. A.

TITLE: Dose field for the irradiation of animals with high-energy
protons

SOURCE: Radiobiologiya, v. 4, no. 5, 1964, 775-781

TOPIC TAGS: corpuscular radiation, high energy proton, radiation
dosimetry, synchrocyclotron

ABSTRACT: The authors provide detailed specifications for the ex-
posure of animals to high-energy corpuscular radiation. Using multi-
ple diffusion of protons in absorbers, it is possible to create a
sufficiently large field of proton radiation a few meters from the
absorber which will meet the requirements of biological experiments.
ILK luminiscent and ferrosulfate dosimeters are useful for measuring
the tissue dose of protons in the 100—700-Mev range. By means of
bilateral radiation it is possible to create uniform tissue doses in

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L 14342-65
ACCESSION NR: AP4046446 O

a dog with an accuracy of ± 10%. When irradiating heavy animals with
500-Mev protons, secondary radiations compose 20--30% of the absorbed
dose expressed in rads. The composition of radiation within the
phantom should be investigated further. Orig. art. has: 5 figures
and 2 tables.

ASSOCIATION: none

SUBMITTED: 09Apr63   ENCL: 00

SUB CODE: LS, NP   NO REF SOV: 012   OTHER: 006

Card 2/2

S/0089/64/016/005/0437/0440

ACCESSION NR: AP4036528

AUTHOR: Afanas'yev, V. P.; Kyeirim-Markus, I. B.; Kovalev, Ye. Ye.; Sakovich,
V. A.; Smirenny*y, L. N.; Sy*chkov, M. A.

TITLE: Methods for experimental studies of the protecting properties
of materials by using the proton beam of the Dubna synchrocyclotron

SOURCE: Atomnaya energiya, v. 16, no. 5, 1964, 437-440 .

TOPIC TAGS: space flight, irradiation protection, high energy proton, secondary
neutron, proton absorption, cosmonaut protection

ABSTRACT: In connection with the problem of protecting cosmonauts from penetrating
radiation during spaceflights the absorption of protons from the Dubna synchro-
cyclotron of 660 ± 3 Mev was investigated. In the space problem, one has to
consider a wide beam of protons, whereas experimentally one deals with narrow
beams. The authors show that by proper distribution of radiation detectors and
by summation of their readings, the problem is equivalent to recording by a
single detector of radiation produced by a wide proton beam. The proton energy

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ACCESSION NR: AP4036528

behind the shielding was measured by magnetic analysis and by the energy-range relationship in lead and . aluminum. Orig. art. has: 1 figure.

ASSOCIATION: None

SUBMITTED: 28Mar63   ATD PRESS: 3056   ENCL: 00

SUB CODE: PH, NP   NO REF SOV: 004   OTHER: 004

Card 2/2

BOBKOV, V.G.; DEMIN, V.P.; KELMRE-MALKUS, I.B., KOVALEV, Ye.Ye.;
    LARICHEV, A.V.; SAKOVICH, V.A.; CHIREPNYY, I.I.;
    SYCHKOV, M.A.; MEL'NIKOVA, A.I., red.

[Radiation safety in space flight] Radiatsionnaia bez-
opasnost' pri kosmicheskikh poletakh. Moskva, Atomizdat,
1964. 370 p.   (MIRA 18.1)

AFANAS'YEV, V.P.; KEIRIM-MARKUS, I.B.; KOVALEV, Ye.Ye.; KUZNE COVA, L.S.;
    SAKOVICH, V.A.; SMIRENNYY, L.N.; SOKOLOVA, I.K.; SYCHKOV, M.A.

Dose field for irradiation of animals with high energy protons.
Radiobiologiia 4 no.5:775-781 '64.

                                                    (MIRA 18:4)

L 9882-66   EWP(e)/EWT(m)/EWP(b)   DM/WH
ACC NR: AP6003965   SOURCE CODE: UR/0089/65/019/003/0311/0312

AUTHOR: Bochvar, I. A.; Keirim-Markus, I. B.; Moiseyev, A. A.; Prosina, T. I.;
Yakubik, V. V.

ORG: none

TITLE: Measurement of the background external radiation exposure of the urban
population in the USSR

SOURCE: Atomnaya energiya, v. 19, no. 3, 1965, 311-312

TOPIC TAGS: radiation dosimeter, gamma irradiation, radioactive contamination, man

ABSTRACT: Preliminary results are presented of the measurement of the background
external exposure of small groups of people from 26 cities in the USSR. The studies
were started in the second half of 1963. Individual dosimeters of the infrared
spectroscopic type using thermoluminescent aluminophosphate glass were employed,
allowing gamma doses from 0.02 to 2×10^6 rads to be measured. Ten people from
each city wore the dosimeters continually for 167 to 325 days. The drop in
instrument readings during the time of exposure was measured for control dosimeters.
A table of results and error limits is given. Analysis of the data showed that
the exposure levels depend largely on the type of rocks and soils in the cities;
attempts to observe a correlation between exposure dose and latitude or height
above sea level were unsuccesful. Orig. art. has: 1 table. /NA/

SUB CODE: 06 / SUBM DATE: 01Apr65 / ORIG REF: 002 / OTH REF: 004
                                                      UDC: 539.16.04

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L 27302-66   EWT(1)/EWT(m)/FCC/EWA(h)   GW

Monograph   UR/

ACC NR: AM6001040   103

Bobkov, V. G.; Demin, V. P.; Keirim-Markus, I. B.; Kovalev, YE. YE.; Larichev, A. V.; Sakovich, V. A.; Smirennyy, L. N.; Sychkov, M. S.

Radiation safety during space flights (Radiatsionnaya bezopastnost' pri kosmicheskikh poletakh) Moscow, Atmizdat, 1964. 370 p. illus., biblio. 1700 copies printed. B+1

TOPIC TAGS: cosmic radiation, solar radiation, space radiation hazard, radiation safety, radiation belt, radiation dosimetry, radiation protection, solar corpuscular radiation, nuclear energy, nuclear propulsion engine

PURPOSE AND COVERAGE: This monograph may be of interest to persons concerned with problems of radiation safety in space flights. It is a compilation of articles written by various authors on cosmic radiation, its sources, levels, dosimetry techniques, and physical methods for protection against radiation. The authors' purpose was to present the problem of radiation safety in space flight as fully as possible. Peculiarities of cosmic radiation dosimetry are outlined; radiation conditions in space, basic interactions of cosmic radiation with the matter, and radiation protection are analyzed. Chapters 1 and 3 were written by Z. B. Keirim-Markus, Chapters 2 and 4 by M. A. Sychkov, Chapters 5 and 8 by A. V. Larychev, Chapter 6 by Ye. Ye. Kovalev, Chapter 7 by Ye. Ye. Kovalev and L. N. Smirennyy, Chapter 9 by V. G. Bobkov, and Chapter 10 by V. P. Demin and V. A. Sakovich.

TABLE OF CONTENTS [abridged]:

UDC: 539.16+628.58+523

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ACC NR: AM6001040

Card   2/3

Card   3/3

ACC NR: AP7000129   SOURCE CODE: UR/0115/66/000/011/0018/0019

AUTHOR: Keirim-Markus, I. B.; Kochetkov, O. A.; Moskalev, Yu. I.; Popov, V. I.

ORG: none

TITLE: Measurement units used in ionizing radiation dosimetry and radiation safety
equipment

SOURCE: Izmeritel'naya tekhnika, no. 11, 1966, 18-19

TOPIC TAGS: ionizing radiation biologic effect, relative biologic efficiency,
radiobiology, x ray radiation biologic effect, radiation shielding, radiation safety,
radiation dosimetry

ABSTRACT: The authors criticize GOST 8848-63, adopted 1 July 1964, which established
joules/kg and coulombs/kg as standard units for measurement of ionizing radiation
absorbed dose and exposure, respectively. In so doing, this GOST standard ignored
the decision of the ICRU (International Commission on Radiological Units) to
recommend the use of the rad (=1 centijoule/kg) and roentgen (=0.257976 milli-
coulomb/kg), which are the units in which almost all presently used instrumentation
is calibrated and almost all current research expressed. The cumbersome numerical
data conversions required by use of the GOST units will afflict not only all studies
involving absorbed doses expressed in rads and exposures in roentgens, but also all
biologi... ...equivalent or effective dose units
(ber, rem) based on rad and roentgen. Indeed, GOST 8848-63 provides no units whatever

Card 1/2   UDC: 577.391(017)

ACC NR: AP7000129

for the measurement of dose equivalents. The authors propose that GOST 8848-63
be revised to establish the generally used and ICRU-recommended units of rad,
roentgen, and ber as standard units, and further suggest that any new units for
radiological measurement should not be officially adopted by individual countries
unilaterally, but proposed through and approved by the ICRU.   [DP]

SUB CODE: 18, 06/ SUBM DATE: 04May66/ ORIG REF: 005/   OTH REF: 004/
ATD PRESS: 5110

KEISALO

3509. DRY-COOLING OF COKE. Keisalo, A. (Suomen Kemistilehti, 1948, vol. 21A, 27-30; abstr. in Chem. Abstr., 1948, vol. 42, 8445).

A review of the methods for recovery of heat energy in the cooling of coke.

METALLURGICAL LITERATURE CLASSIFICATION